MASCHINEN-, ANLAGEN- STEUERUNGSTECHNIK UND SYSTEMSOFTWARE GMBH

Spec. & User manual for Windows9X/ME

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APPROVAL by	CHECKED by	REPORTED by
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1. Touch Panel Controller

This touch panel controller provides the optimistic performance of analog resistive touch panels for 4 wire, 5 wire and 8 wire models. It communicates with PC system directly through RS232, PS/2 or USB connector. user can see how superior the design is in sensitivity, accuracy and friendly operation. The touch panel driver emulates mouse left and right button function and supports operation systems including Microsoft Windows 95/98/ME/2000/NT/XP/XP Tablet PC Edition, Windows CE 2.12/3.0/.NET, Linux, iMac and DOS.

1-1 Controller

Interface	RS232	USB	PS/2
4-wire	Ready	Ready	Ready
5-wire	Ready	Ready	Ready

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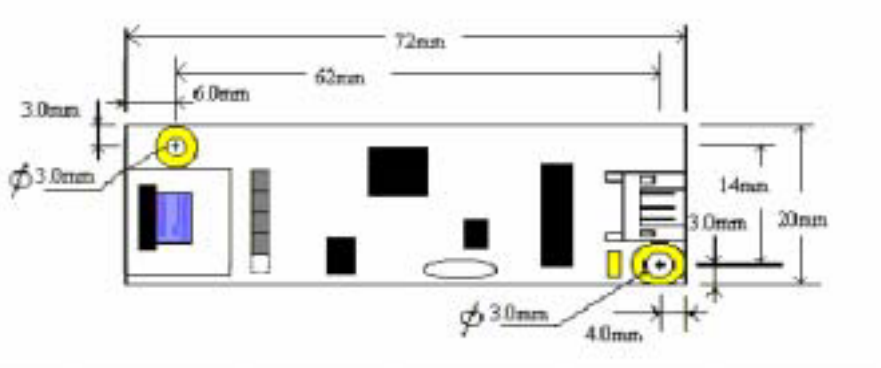
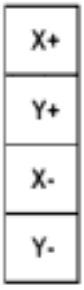
1-2 Specifications and Features

Specifications for Touchkit controller.

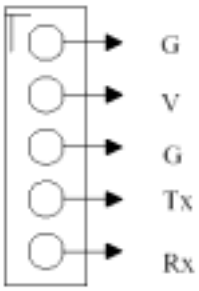


4-Wire RS-232 Part-Number: TD-RS232-W4R-SC	
Circuit Board Dimension	20mm x 72mm (0.79inches x 2.84inches)----(4-Wire)
Power Requirements	D.C.+5V (100mA typical,50mV peak to peak
	maximum ripple and noise)
Operating Temperature	0 to 50 ℃
Storage Temperature	-40 to 80 ℃
Relative Humidity	95% at 60 ℃
Interface	Bi-directional RS-232 serial communication
Protocol	No parity,8 data bits,1 stop bit,9600 baud(N,8,1,9600)
Report rate	RS232 Model: Max. 160 points/sec
Response time	Max. 35 ms
Attached Cable	6' shielded cable with 9-pin D-sub connector
Regulatory Approvals	FCC-B , CE,Unaffected by EMI from other nearly CRTs
	and other display devices
EMI	Unaffected by environmental EMI
Panel resistance	4 wire resistive model: 300 ~ 900 ohm

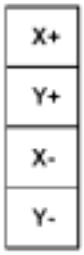
Controller Panel Pin Assignment:



Controller Wafer Pin Assignment:



Flat Cable Pin Assignment:



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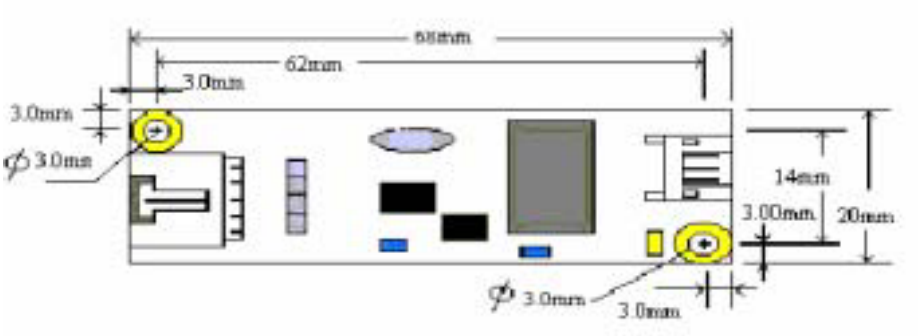
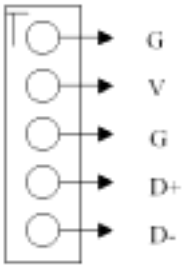


4-Wire USB Part-Number: TD-USB-W4R-SC	
Circuit Board Dimension	20mm x 68mm (0.79inches x 2.68inches)----(4-Wire)
Power Requirements	D.C.+5V (100mA typical,50mV peak to peak
	maximum ripple and noise)
Operating Temperature	0 to 50 ℃
Storage Temperature	-40 to 80 ℃
Relative Humidity	95% at 60 ℃
Interface	USB 1.1 Low Speed
Report rate	USB Model: Max. 160 points/sec
Response time	Max. 35 ms
Attached Cable	6' shielded cable with USB-A connector for USB port
Regulatory Approvals	FCC-B , CE,Unaffected by EMI from other nearly CRTs
	and other display devices
EMI	Unaffected by environmental EMI
Panel resistance	4 wire resistive model: 300 ~ 900 ohm

Controller Panel Pin Assignment:

X+
Y+
X-
Y-

Controller Wafer Pin Assignment:



Flat Cable Pin Assignment:

X+
Y+
X-
Y-

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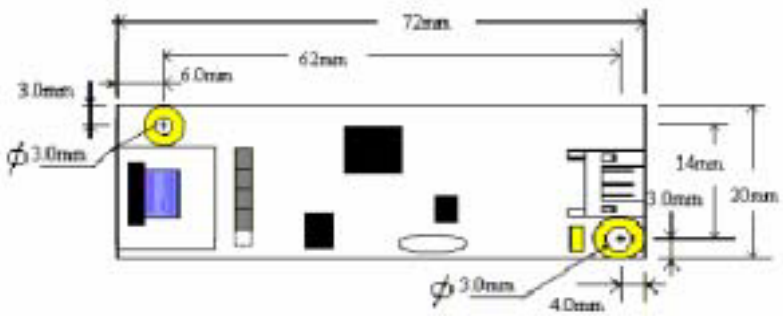


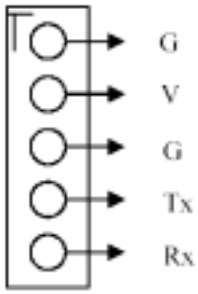
5 Wire RS-232 Part-Number: TD-RS232-W5R-SC

Circuit Board Dimension	20mm x 72mm (0.79inches x 2.84inches)----(5-Wire)
Power Requirements	D.C.+5V (100mA typical,50mV peak to peak
	maximum ripple and noise)
Operating Temperature	0 to 50 ℃
Storage Temperature	-40 to 80 ℃
Relative Humidity	95% at 60 ℃
Interface	Bi-directional RS-232 serial communication
Protocol	No parity,8 data bits,1 stop bit,9600 baud(N,8,1,9600)
Report rate	RS232 Model: Max. 160 points/sec
Response time	Max. 35 ms
Attached Cable	6' shielded cable with 9-pin D-sub connector
Regulatory Approvals	FCC-B , CE,Unaffected by EMI from other nearly CRTs
	and other display devices
EMI	Unaffected by environmental EMI
Panel resistance	5 wire resistive model: 50 ~ 200 ohm

Controller Panel Pin Assignment:

UL
UR
COM
LR
LL

Controller Wafer Pin Assignment:



Flat Cable Pin Assignment:

UL
UR
COM
LR
LL

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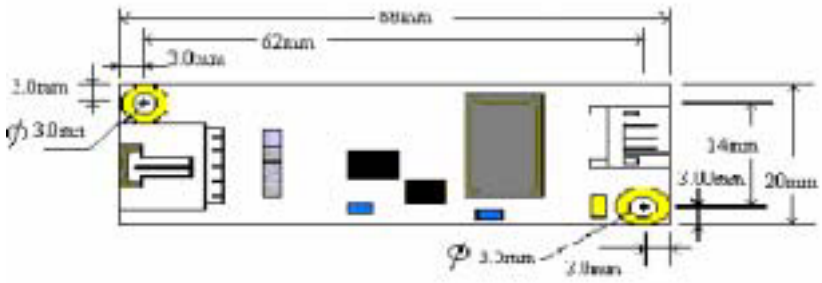
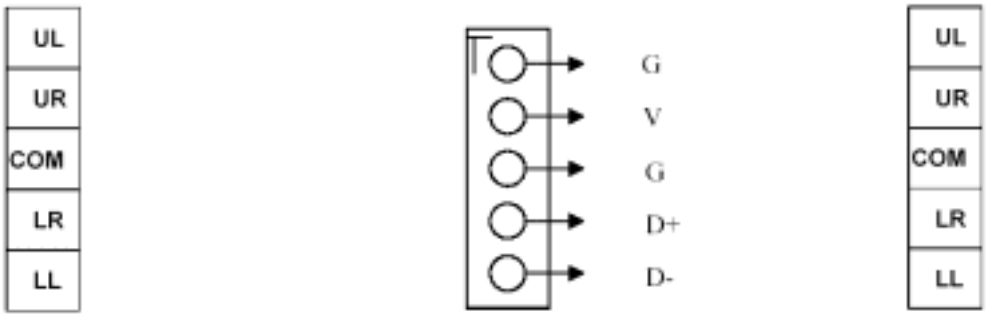


5 Wire USB Part-Number: TD-USB-W5R-SC	
Circuit Board Dimension	20mm x 68mm (0.79inches x 2.68inches)----(5-Wire)
Power Requirements	D.C.+5V (100mA typical,50mV peak to peak
	maximum ripple and noise)
Operating Temperature	0 to 50 ℃
Storage Temperature	-40 to 80 ℃
Relative Humidity	95% at 60 ℃
Interface	USB 1.1 Low Speed
Report rate	USB Model: Max. 160 points/sec
Response time	Max. 35 ms
Attached Cable	6' shielded cable with USB-A connector for USB port
Regulatory Approvals	FCC-B , CE,Unaffected by EMI from other nearly CRTs
	and other display devices
EMI	Unaffected by environmental EMI
Panel resistance	5 wire resistive model: 50 ~ 200 ohm

Controller Panel Pin Assignment: ***Controller Wafer Pin Assignment:*** ***Flat Cable Pin Assignment:***



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Features for Touchkit software

Features	
Calibration	1. Fast full oriental 4 points position 2. Support monitor / display rotation 3. Support multiple monitor / display 4. Support QVGA and Half-VGA function
Compensation	Accuracy 25 points linearity compensation.
Draw Test	Position and linearity verification
Controller Setting	1. Support multiple controllers 2. Dynamical add / remove controllers 3. Change Controller interface without reboot.
Language	Support 9 languages for Windows
Mouse Emulator	1. Right / Left button emulation 2. Normal / Click on touch / Click on release mode 3. Cursor visibility
Sound Notification	1. No sound 2. Touch Down 3. Lift Up 4. Frequency adjustment 5. Duration adjustment
Double Click	1. Configurable double click speed 2. Configurable double click area
OS support	1. Windows 95/98/ME/NT4/2000/XP/ Windows XP Tablet PC Edition 2. Windows CE 2.12, 3.0, .NET 3. Linux (X Window Version: 3, 4 Red Hat 6.0 ~ 8.0 Mandrake 5.0 ~ 9.0) 4. iMac. OS9 5. MS-DOS: Support display resolution: 320x200, 640x200, 640x350, 640x480, 800x600, 1024x768 and 1280x1024
COM port support	1. Support COM 1 ~ COM 256 for Windows and Linux 2. Support COM 1 ~ COM 8 for DOS

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2. Installing and using TouchKit

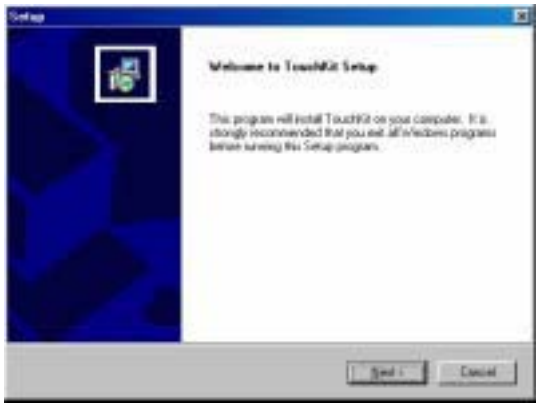
TouchKit is software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities:

- **Touch Tray support**
  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

- **Configuration support**
  The calibration and draw test of touch panel are done by this utility. Besides, user can add or remove for new RS-232, PS/2 or USB touch panel devices.

Follow these steps to install ***TouchKit.***

1. Put the ***TouchKit*** CD to CD-ROM.
2. Change directory to **Win9X_ME**
3. Double click the **Setup.exe**, then windows starts to run the installation program. Notice that do not plug the USB controller on the system before the installation has been finished.
4. Just click **[Next >]** button to continue installation.



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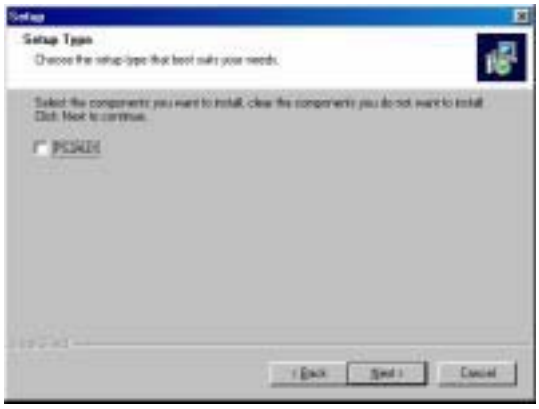
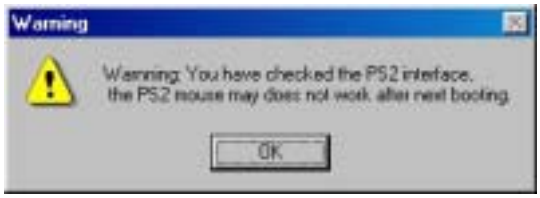
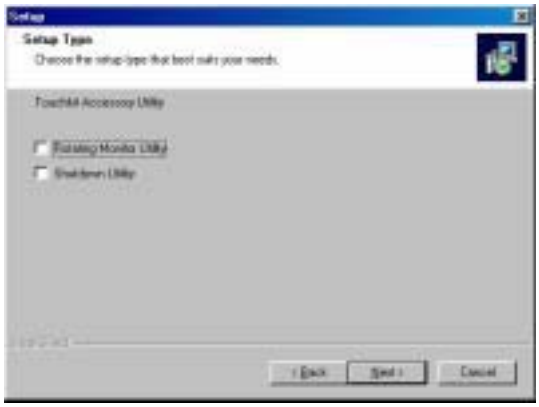
5. Then check the check box if PS/2 touch controller is to be installed. The default is unchecked. Then Press **[Next >]** to continue installation.





System will give you a warning, if user checks the PS2AUX check box,

6. Choose the setup type that best suits your needs. There are two ***TouchKit*** accessory utilities for choosing, **Rotation Monitor Utility** and **Shutdown Utility**. Users can install the utility they want by checking the box. Then Press **[Next >]** to continue installation.



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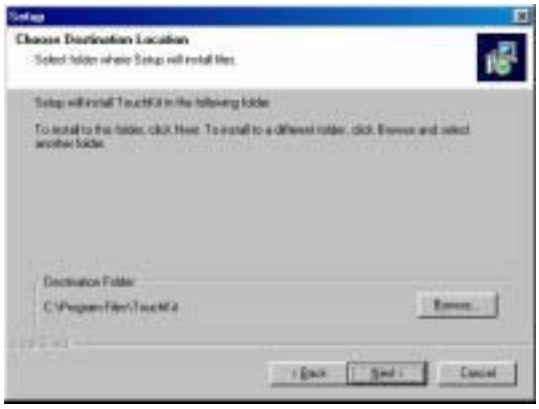
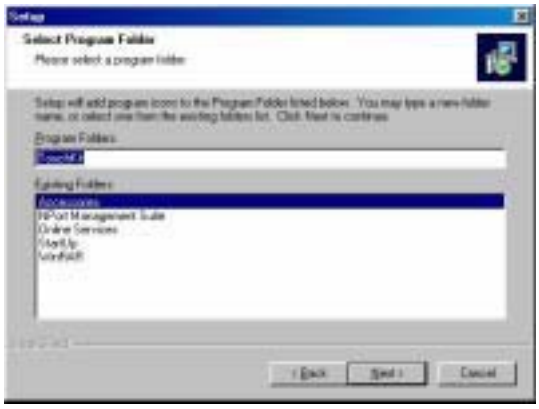
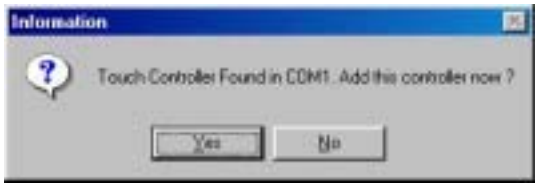
7. Select the appropriate folder where set-up files will be installed. Then Press **[Next >]** to continue installation.


Setup
Choose Destination Location
Select folder where Setup will install files.
Setup will install TouchKit in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\TouchKit
Browse...
< Back
Next >
Cancel

8. Then type in the name of program folder for ***TouchKit*** or press **[Next >]** to continue. There will be a default name for it.


Setup
Select Program Folder
Please select a program folder.
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.
Program Folders:
TouchKit
Existing Folders:
Accessories
HP Document Management Suite
Online Services
StartUp
WinRAR
< Back
Next >
Cancel

During driver installation, the setup program will scan COM port for RS232 ***Touchkit*** controller. Once the controller was scanned, the setup program will display a dialog as



Click Yes to add the controller on the specified COM port automatically.

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9. Windows is copying files to disk and the setup is complete. It will request re-boot computer. Press **[Yes >]** to re-boot immediately or **[No >]** to re-boot later. The installation will not be finished until system re-boot.

10. Setup is complete. After ***TouchKit*** installation, the USB device will be found automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB Device automatically as soon as it was unplugged. **(USB device is not supported for Windows95)**

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3. Configuration Utility and Right Button Emulator

There are four property pages in *TouchKit* utility, and they are General, Setting, Monitors and About. Each property page contains different functions for users to do the adjustments. Therefore, users can easily manage all the *TouchKit* controllers through *TouchKit* Utility.

Functional Group Tab

General

General property page contains the functions of **language selection**, **devices add/ remove**, **4 points calibration**, **Draw test** and **advanced**.

<Language>

TouchKit supports multi-language user interface. Users could select native language that is compatible to operation system support. For example, if the operation system is a traditional Chinese version, user could see the normal display words under the traditional Chinese and English mode. There are nine different languages, **English**, **Traditional Chinese**, **Simplified Chinese**, **French**, **Spanish**, **German**, **Japanese, Italian** and **Korean**, supported in this feature of ***TouchKit***.

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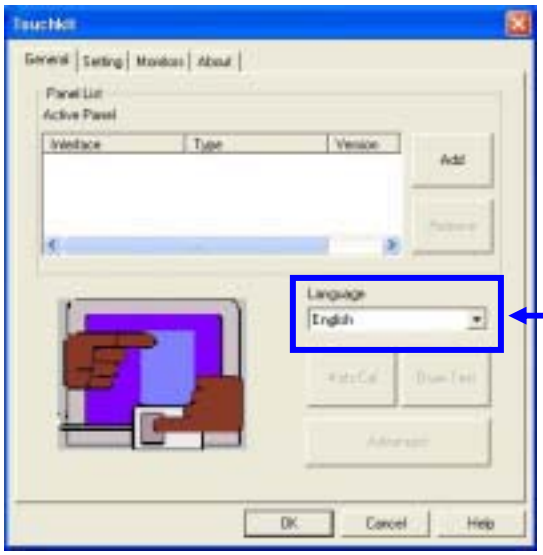
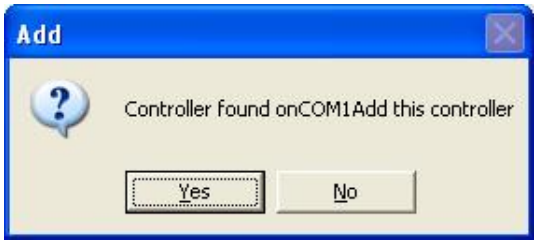


Note to select the compatible language

Select the compatible language first or user may not see the normal display of each button.

<Add> / <Remove>

Please check the touch panel devices (including its controller) are equipped well, then click **[Add]** button to add all of those RS-232 and PS/2 components to the **Panel List** dialogue box.



There is one devices found. Press **[Yes]** to continue.

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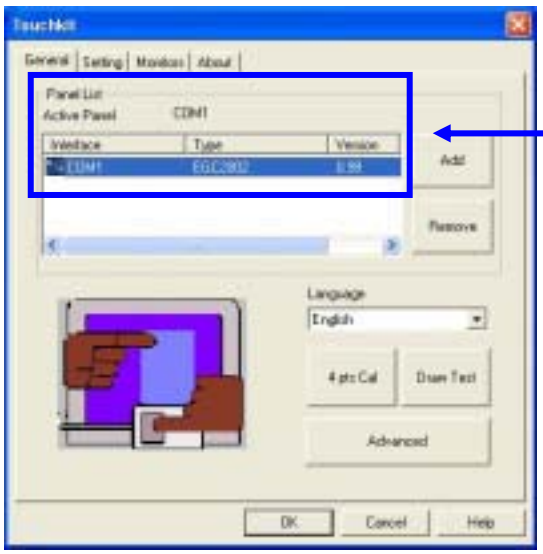
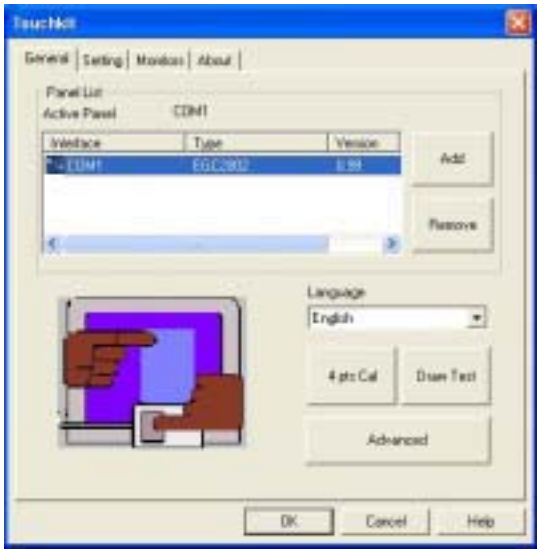


The controller is displayed on the Panel List box. users can get the information of interface, type, firmware version and baud rate for each controller.
Select one device after added more than one device at the panel list window.
The one selected will activate the panel, and remember to do the calibration before starting to use touch panel.



But, for hot-swapping USB touch controller, it will be added automatically as soon as it was plugged into the computer. Then users can see the new device on the application program window. And, the program will remove the USB touch controller automatically as soon as it was unplugged. **(USB device is not supported for Windows95)**

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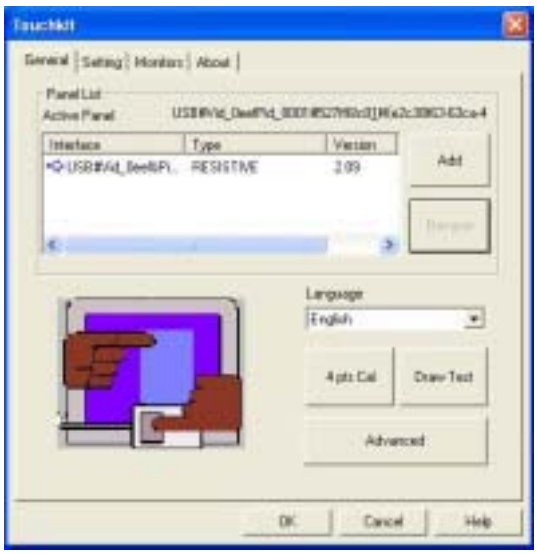

There are three buttons, **[4pts Cal] [Draw Test] [Advanced]**, at the lower section of the **General** property page.

<4pts Cal>

Correct 4 point locations on screen with the panel. Press **[4 pts Cal]**, screen displays as follows.

Touch the blinking symbol on panel until beep or stop blinking.

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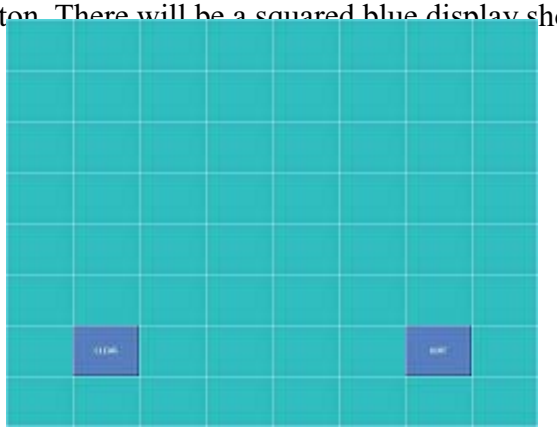
<Draw Test>

Test the drawing position related to the display screen on panel.

Click on the **[Draw Test]** button. There will be a squared blue display showing.

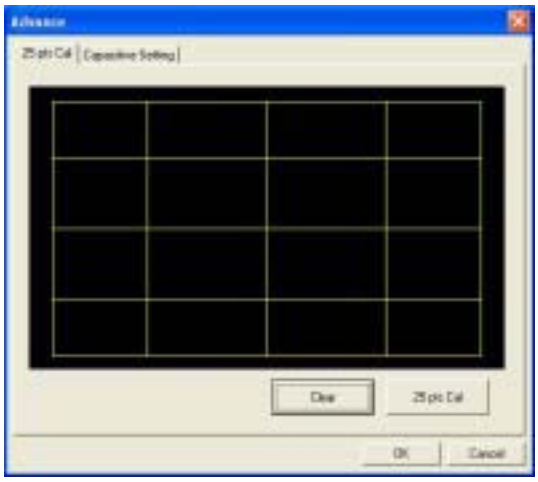


In drawing test window, users can click **[Clear]** button to clear the window. Also, User can click **[Quit]** or press mouse right button to quit from the drawing test.

If **no touch action** happen within minutes, it will quit from the draw test window automatically. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

<Advanced>

Touchkit provide more accuracy 25 points calibration for touch sensor. In addition, ***Touchkit*** provide controller setting for capacitive touch sensor. If the capacitive controller is selected, a capacitive setting property page appears on the advanced sheet. In general case, it does not need to do 25 points calibration other then bad linearity sensor.



Press **[Clear]** to clear the previous calibration records.

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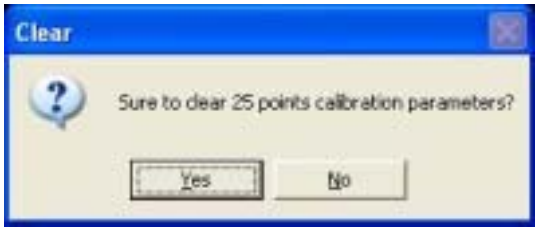
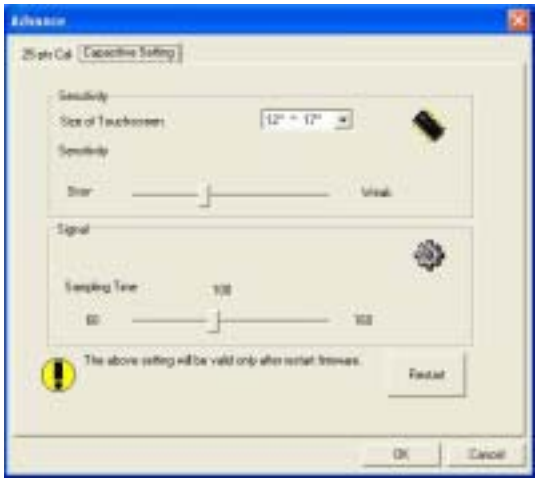


Press **[Yes]** to clear previous records.The record will become default record.

Press **[25ptCal]** to do 25 points calibration. Correct 25 point locations on screen with the panel.

Touch the blinking symbol on panel until beep or stop blinking.
After the calibration, the new record will overwrite the old one.

If the selected controller is capacitive type, an extra property page for capacitive setting adjustment shown as below:



Please select property size of capacitive screen first, and press **[Restart]**

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The capacitive controller will restart, and do not touch the screen before the warning message disappears

Warming: Do not adjust the sensitive and sampling time without RD help

Setting

There are three functional groups in **Setting** property page, and at the upper section of the property page is **sound option**; at the middle section is **Mouse Mode;** and at the lower section is **Double Click Adjustment**.

The **Sound** options provide user the click feedback while touching the panel.
Select preferred option first.

Sound options →

<No Sound>

Users could choose to make no sound while using the touch panel.

<Touch Down>

The system will make a sound while touching the panel.

<Lift Up>

The system will not make any sound until finger leaves the touch panel.

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<Frequency>

Sound frequency, drag the cursor from left to right is low to high.

<Duration>

Sound duration, drag the cursor from left to right is short to long.

The **Mouse Mode** provides user different operating options. They are as follows:

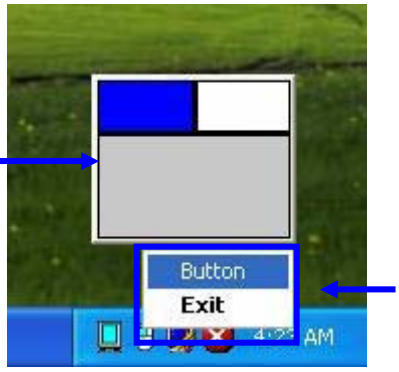
Mouse Mode

<Mouse Button>

Click it to **show / hide** ***Touch Tray*** on the right bottom corner of the desktop. The touch panel system starts with the computer booting, and a mouse icon shows in the taskbar.

Users can choose show or hide ***Touch Tray*** from the mouse icon in the taskbar. Just right click the mouse icon, there will be a pop-up box. Using the **Button** to choose show or hide, and if user wants to disable the touch panel system, choose **Exit.**

Touch Tray



Button to show / hide Touch Tray

Exit to disable the touch panel

Change **right / left** button by clicking the upper small rectangular box of ***Touch Tray***. Blue area expresses what button has been selected.

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<Shutdown utility>

Shutdown utility

Click on shutdown utility in the task bar

Shutdown utility dialog

There are five modes in shutdown utility for users convenience.

[Standby] to enter standby mode that saves power consumption.
[Shutdown] to turn off PC.
[Reboot] to restart PC.
[Cancel] to escape from the Shutdown utility dialog.
[Exit] to disable the Shutdown utility.

Please notice that Windows NT doesn't support this function.

<Mouse Mode>

There are three kinds of mouse mode user could choose,

[Normal Mode]

It provides all the mouse functions, including the dragging function.

[Click on Touch]

Click action is executed as soon as user touches the panel.

[Click on Release]

Click action will not be executed until finger leaves the panel.

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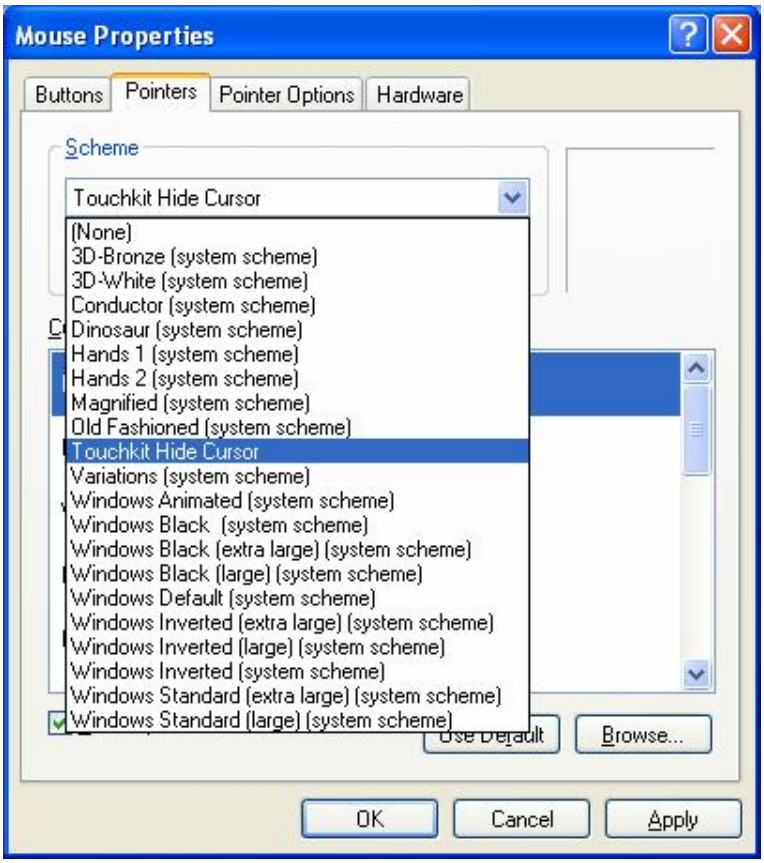
<Cursor Visibility>

Cursor visibility function provides user to hide the cursor in the display. Please go to **Start / Control Panel / Mouse / Pointers / Scheme**, and choose **TouchKit Hide Cursor**. Press **[Apply]** to make setting change, and press **[OK]** to escape the property page.



If user wants to cancel the function of TouchKit Hide Cursor, do the steps again and choose the other scheme.

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The **Double Click adjustment** provides user to set up the tolerance while double clicking. They are as follows:

Double Click Adjustment

<Double Click Speed>

Double Click Speed is the double click response time for Windows system. User can adjust the proper double click for easy double click by touch panel.

<Double Click Area>

Each one touch has its own touch tolerance once someone may not fix in one point. So if user set the Double Click Area to **<Smaller>**, the panel will be very sensitive about micro-move while user wants to fix on a point. If user set it to **<Larger>**, it tolerates the larger touch point movement while user want to point at a fixed position.

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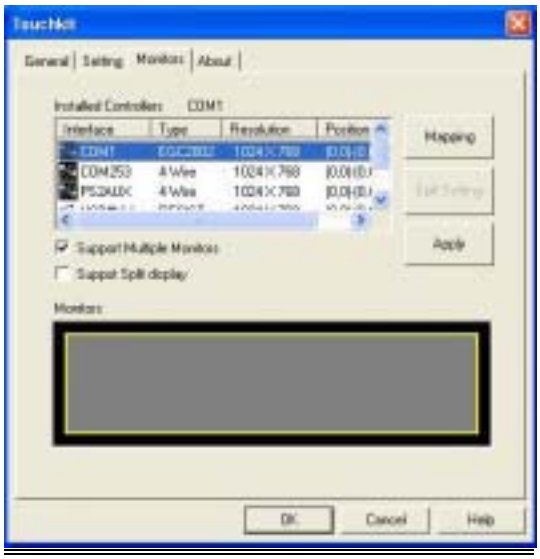
Monitors

There are two functions in this property page, and they are **Multiple Monitors** and **Split Monitor**. Such a trendy and yet innovated design provides viewing pleasures, viewing flexibility and convenience to the users.

<Multiple Monitors>

To configure the mapping relationship between the monitors and the touch panels, select the monitor page as below.



Set the check box (Use Multiple Monitors) to enable multiple monitors mapping. Uncheck this box will disable multiple-monitor configuration, and all of the touch panel controllers will be mapped to the primary monitor. The gray shadow area is the monitor mapped the selected controller/panel. The button **[Mapping]** is used to find the mapping relationships between the monitors and touch panel controllers. Press the **[Mapping]**, the software will guide the user to touch the corresponding monitor to obtain the mapping relationship.

After finish monitor mapping, Press **[Apply]** to apply the mapping relation.

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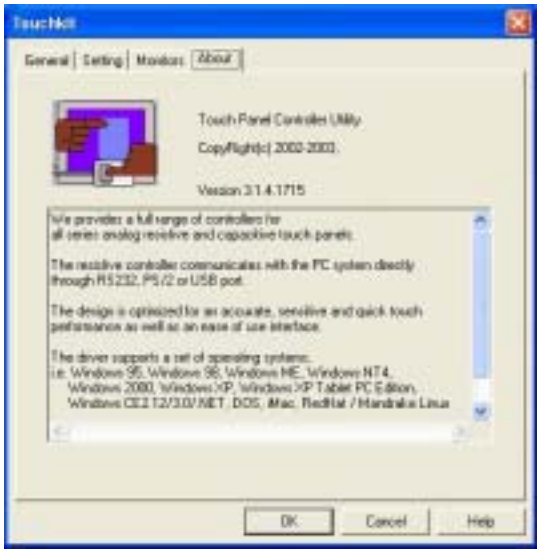
<Split Monitors>

To use the Split Monitor function, users need to select which controller you want to launch this function, then check the Multiple Monitors box and Split Monitor at the same time as showing as the follow picture. Press the **[Split Monitor]** button to set up the activate area.

It shows the current resolution of display and users can set up the activate area by inputting the value by yourself or use the default button **[Upper Half]**, **[Left Half]** or **[Quarter]**. The default value of panel resolution should be full screen as Left: **0** , Right: **0**, Top: **0** and Bottom: **0**.

About

Information about ***TouchKit***.



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4. MONITOR ROTATION SETTING

Touch Kit driver package for Windows 98/ME/2000/XP provides two easiest ways to rotate the touch panel while the display is rotated.

- Rotating display by way of nVidia or ATI driver
- Rotating display by way of Pivot.

4.1 Rotating display by way of nVidia or ATI driver

1. After activating the rotation of nVidia or ATI driver, there will be one blinking symbol show as the following picture. Touch near the blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

2. However, 180° rotation of touch panel can not be done in one step, users need to rotate 90° twice.

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4.2 Rotating display by way of Pivot

There are two ways to rotate the display by way of Pivot.

- Rotating display by way of Pivot hotkey or function menu
- Rotating display by way of RotTray icon provided by ***TouchKit***.

< Rotating display by way of Pivot hotkey or function menu >

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. There will be a pivot icon in the task bar. User can click on it, and user can choose four angles: 0°, 90°, 180°, 270° to rotate the display.

3. After choosing the angle users want to rotate, there will be one blinking symbol showing as the following picture. Touch this blinking symbol until stop blinking, and the touch panel will rotate itself.

One touch blinking symbol adjustment

4. However 180°rotation of touch panel can not be done in one step, users need to rotate 90° twice.

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< Rotating display by way of RotTray icon provided by TouchKit>

1. To rotate the display, please install Pivot pro 6.05 first. Then reboot PC to activate Pivot.

2. Users will see ***RotTray*** icon in the task bar.

RotTray icon

3. Clicking on ***RotTray***, it will call Pivot to rotate the display and touch panel 90° at the same time. Clicking it again, it will rotate another 90°to 180°. Every click on ***RotTray***, display will rotate clockwise. Recalibration and one symbol adjustment won't be necessary anymore.

4. However this version of ***RotTray*** is design for Pivot pro 6.05. If users want to use older version of Pivot, like Pivot 5.1, users need to amend the value of windows registry. The next step is an example for setting Pivot 5.1 on Win98.

5. Go to **Start / Run**, and execute regedit.

Press **[OK]** to execute

6. **For Windows 95/98/ME** OS, The Registry Editor will show as the follow picture. Then go to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\TKIT.
   For Windows 2000/ XP, please go to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Touchkit
   Right click on the **MaxRotation**, and choose Modify.

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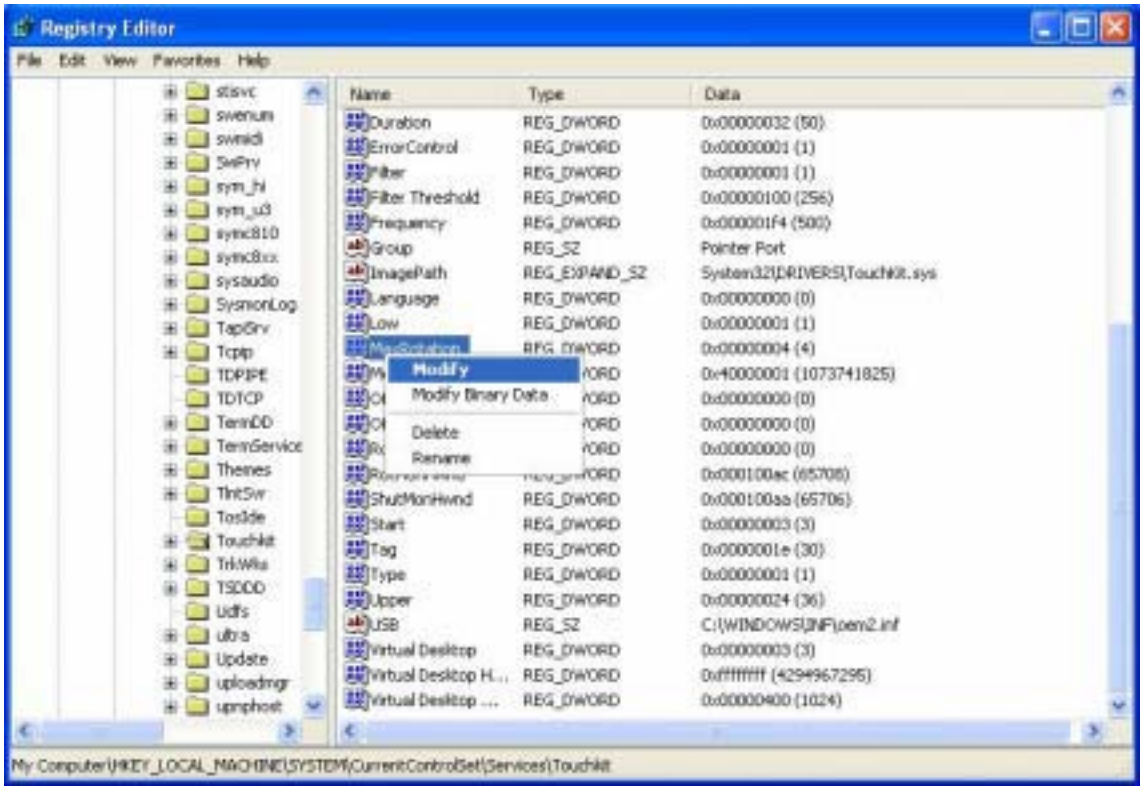
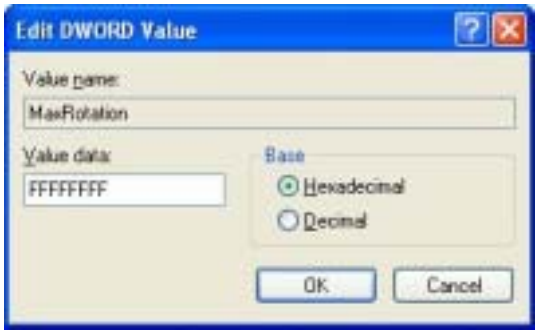


Right click on MaxRotation to Modify Value data

7. Choosing the Hexadecimal Base, and replace the value data “4”(default) with “FFFFFFFF”.



Pressing **[OK]** to confirm.

8. Here bellow are the value data for different version of Pivot:

Version of Pivot	Available Angle	Value Data
Pivot pro 6.05	0°,90°,180°270°	4 (default)
Pivot 5.1	0°,-90°	FFFFFFFF
Other Version	0°, 90°	2

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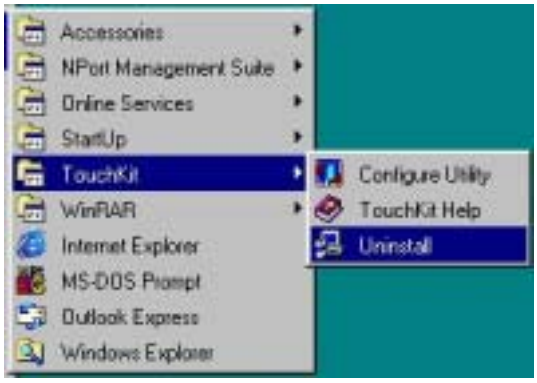
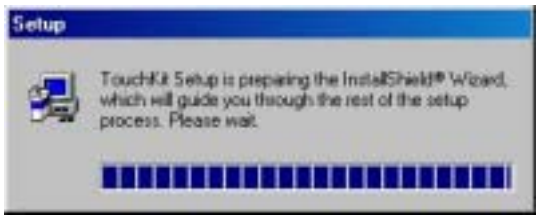
5. Uninstalling TouchKit

Follow these steps to uninstall ***TouchKit.***

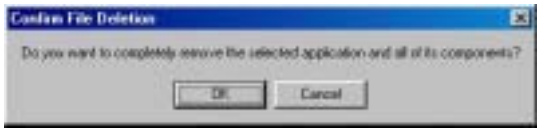
1. Go to **Start / Programs / TouchKit / Uninstall**, and execute it.



2. ***TouchKit*** setup dialog appears, and prepares to uninstall.


Setup
TouchKit Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.

3. Confirm dialog, press **[OK]** to start un-installation; **[Cancel]** to cancel un-installation.



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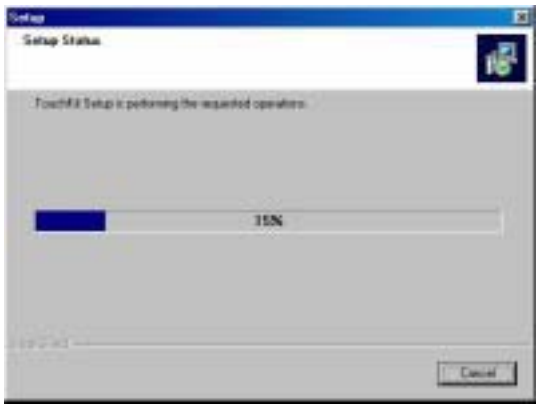
4. Start to uninstall ***TouchKit***.



If user does not want to uninstall ***TouchKit*** at this moment, press **[Cancel]** to terminate the uninstall process.

5. ***TouchKit*** will not be removed until system re-boot. Press **[Yes]** to re-boot immediately or **[No]** to re-boot later.

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